477 An intensive home management as a potential method to improve outcome of care for cystic fibrosis patients treated at home with intravenous antibiotics during pulmonary exacerbations

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Background: With the widespread of home intravenous (IV) treatment for CF pulmonary exacerbations (PExs), evidence pointing to an inferior outcome of care for patients treated at home in comparison to patients treated in hospital is cause of concern to the CF community. The Specialist Commissioning Group in the Southwest Region of England has provided funding to improve the home treatment service with additional staff to cater for patients in our centre. A programme in which patients are supported by CF nurses and physiotherapists at home during their IV treatment was organised. The outcome of care of this new practice will be analysed.
Patients and Methods: This is an ongoing single centre prospective study comparing outcome of PExs treated in the 2 study sites, hospital and home with intensive assistance. 180 PExs will be analysed. At home patients are visited twice a week by a CF nurse and physiotherapist and if necessary by a CF dietician. Symptom score, weight, spirometry, pulse rate are assessed each visit. Advice on rest and adherence to treatment is reinforced. Other clinical advice is provided as required. Outcome measures analysed are changes in symptom score, weight, spirometry, inflammatory markers and CF-related quality of life measures, and number of days until the next PEx. A site specific evaluation of service questionnaire is answered by patients.
Discussion: Ideally outcome of care for home treatment should be at least equal to outcome in hospital. We aim to project the outline of the study and assess the views of CF healthcares in Europe. Changes to the study protocol will be established after the interim analysis of results if necessary.
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478 Experience with totally implantable venous access devices in CF patients

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In CF patients who need frequent courses of iv. antibiotics, totally implantable venous access devices (TIVADs) can solve the problem of difficult venous access. In published series on TIVADs, however, a number of complications were recognized. We report our experience with TIVADs in the last 20 years.
The medical records of CF patients who underwent insertion of a TIVAD from 1987 to 2007 were reviewed to record the details of insertion, duration of function, and complications. Handling of and care for these TIVADs followed a strictly predefined protocol, with regular renewal of the heparin lock, adherence to an aseptic handling technique, and strict avoidance of blood sampling through the device.
25 devices (8 PORT-A-CATH®, 17 Celsite®) were inserted in 25 patients (20.7±7.1 years, range: 10.6–33.3). All catheters were inserted in the right subclavian vein and portals were placed subcutaneously on the anterior chest wall, with all but one device inserted by the same surgeon. In 23 patients (92%) there were no complications until now or patient death. Two complications occurred in 2 patients (1 per 13762 catheter days). One patient developed symptomatic venous thrombosis 3 months after insertion; this complication could be managed successfully without removal of the device. In another patient, catheter dislocation to the jugular vein occurred after 10 months; the catheter was replaced leaving the portal in situ. The mean duration of function was 2039 days (range: 47–4158).
TIVADs provide effective long-term intravenous access in CF patients if they are inserted and cared for in accordance with a standardised surgical approach and a strict long-term maintenance protocol.

479* A 5-year retrospective study of totally implantable ports in CF patients

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Introduction: Preventive intravenous antibiotic (IV-AB) therapy on a regular base is often used in CF. As concomitant IV-AB therapy may be aggressive for patient's veins, a totally implantable port system (port) can be beneficial. The latter, however, is associated with complications.
Methods: We looked for complications in all CF patients who received a port over the last 5 yrs in our centre (2003–2008). All were placed, using the same device and technique.
Results: Fifteen of 160 patients received a port, all females, except one, with a mean age of 24 yrs (16–36 y). Over 5 years 7/15 (46%) developed complications. Three had local venous thrombosis; 2 occurred after 2 yrs, one after 2 mos. Two patients had port infection with sepsis. *Pseudomonas* infection was seen after 2.5 yrs, cepacia sepsis after a month. Two were replaced because of leakage of the device, one after 6 mos, one after 2 yrs.
Discussion: Over 5 yrs we noticed 46% complications, most seen after 2 yrs, although some present early. Patients with thrombosis didn't have an underlying coagulopathy. The only risk factor for thrombosis was the use of oral contraceptives in the presence of the port. The patient with cepacia sepsis was already in bad shape by the time of insertion, sepsis with pseudomonas was abrupt.
Conclusion: As IV-AB therapy on a regular base has become a standard treatment for CF patients, the use of ports will increase in time, especially in adulthood. CF workers need to be aware of the possible complications of ports, as they usually remain longer in situ than in cancer patients. Especially the risk of thrombosis has to be taken into account in female patients, using oral contraceptives. In the light of possible complications, we try to avoid insertion of ports too early in life.

480 Growing up with TIVADs: effect on line position

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Introduction: In non-CF studies, the site of location of the TIVADs catheter tip is directly related to the risk of complications, particularly thrombosis: those in the great vessels rather than right atrium are more prone to occlusion. CF patients are unique since TIVADs can remain in situ from childhood for many years, during which the physical changes associated with growth may cause the catheter tip to move, potentially increasing the complication risk. To look at this further, we reviewed the line position in young CF adults who had TIVADs inserted at least 5 years earlier in the paediatric sector.
Method: At the time of line placement, patient height and weight and the catheter tip position on chest X-ray were compared to the most recent available (at least 5 years later).
Results: Data were available for 16 patients (5 male) who had catheters placed between 1992–2002 (at insertion: mean age 11.1 years [range 4–14], mean weight 33 kg [15–45], mean height 138.6 cm [100–156]). In 10 the catheter tip lay at the right atrial entrance; the remainder lay in the right atrium. At review (mean 9.1 years later [5–16]), mean age 19.6 years [16–25], mean weight gain 18.8 kg [7–52], mean height gain 24.4 cm [5–76], the catheter tip position had migrated away from the right atrium (mean distance 5 cm [0–12]). Younger age at time of catheter placement and maximal growth were associated with the greatest movement (both $r^2 > 0.48$, $p < 0.001$).
Conclusion: This study shows that TIVADs placed prior to the adolescent growth spurt migrate away from the heart over time as patients develop. Since the position of catheter tip location is directly related to the complication rate, physicians caring for young CF adults should be alert to this and the fact that such lines may require early replacement.